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AHSI, RSA

Dr. Douglas N. Graham is recognized as one of the world's leading authorities on nutrition and human performance. He has helped thousands achieve vibrant health, boundless energy, and a renewed joy of living.



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GRAIN DAMAGE

Rethinking
the High-Starch
Diet

by:
Dr. Douglas N. Graham

The grain-free diet is not radical. It is ultraconservative.

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"When I ate grains, I suffered with asthma. Now I breathe freely."

— Tim Trader. N.D. (retired), California

Also by Dr. Douglas N. Graham

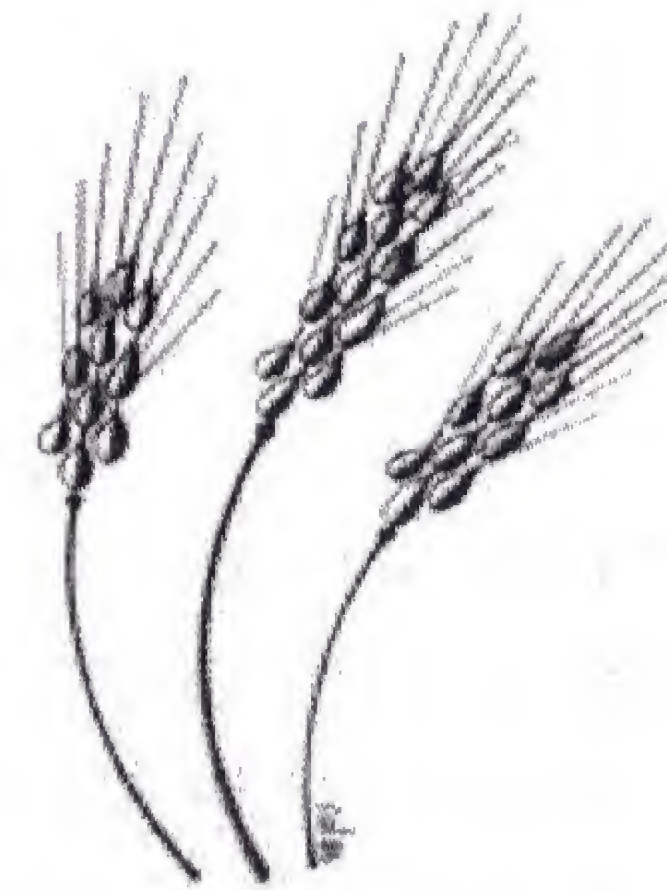
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Grain Damage



Rethinking the High-Starch Diet
by Dr. Douglas N. Graham

Foreword by Dr. James H. Guest



Grain Damage
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by Dr. Douglas N. Graham

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To my beloved wife Rozi, who carefully read every word for meaning and made countless suggestions on how to improve my message, a mere "thank you" seems insignificant by comparison. Your efforts amaze me.

Dedication

*This book is gratefully dedicated
to my loving sister, Nissan.*

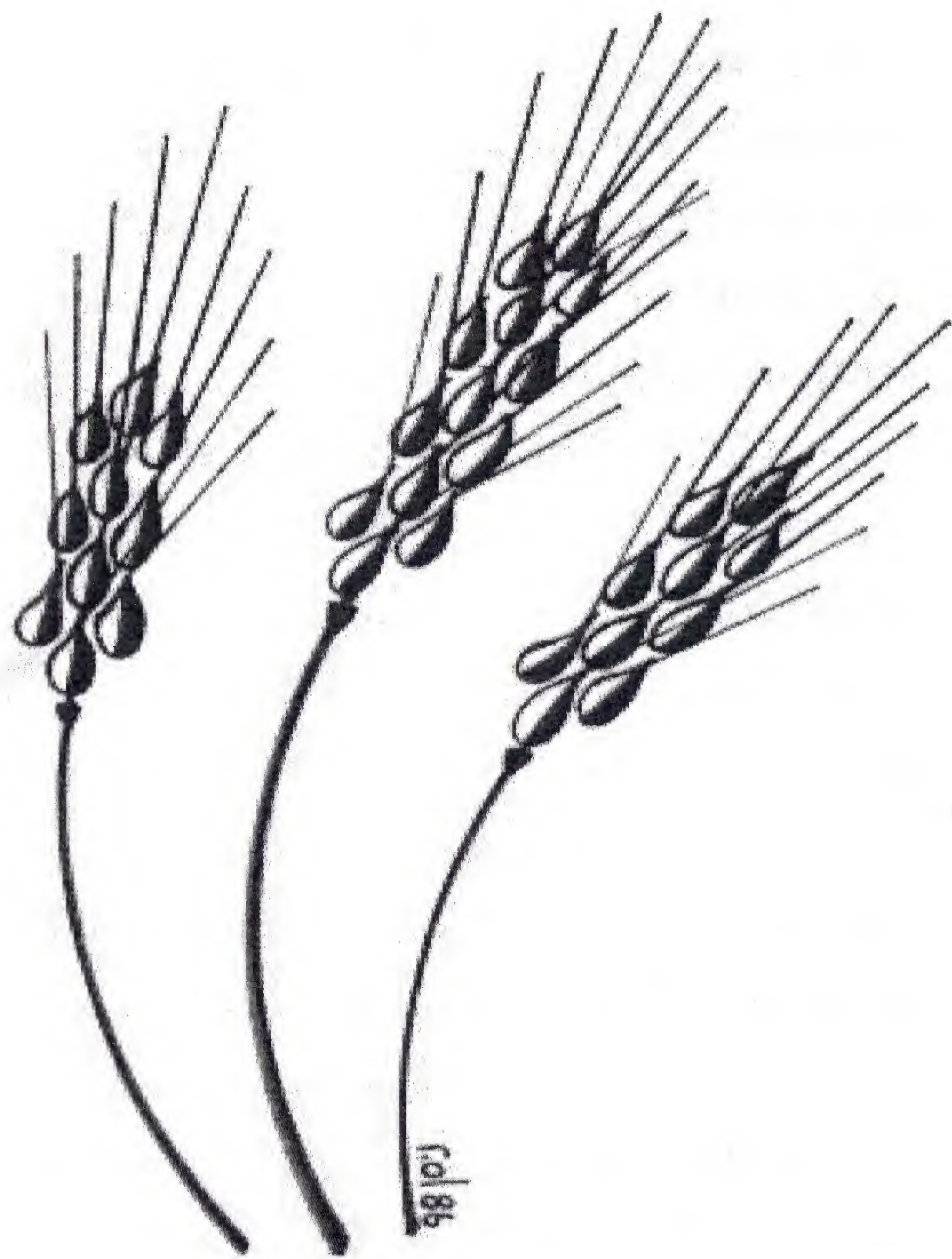
It is only through Nissan's constant guidance and extraordinary dedication to the finished project that I have learned the valuable skill known as follow-through. Her intensely high demand for quality in her own work has, I hope, to some degree rubbed off on me. It is not always easy to accept correction, especially from one's sister. Nissan, your love for me outshines even this attempt to rectify my writer's creative license.

Nissan has always been able to ignore the distracting influences of others and to follow her own path, a trait that has, when coupled with her tremendous artistic talent and attention to detail, enabled her to earn many of the highest accolades in her chosen field of pottery. She is gifted with brilliant vision, exceptional patience, and profound creativity.

I would like to believe that Nissan finds my own work standards to be more than acceptable, and that she is always deeply proud of me.

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The obesity and malnutrition problems experienced in epidemic proportions by those who follow the Standard American Diet are due in large part to the overconsumption of grains and the underconsumption of fruit.

Foreword

As a professor of clinical nutrition, I am always on the lookout to learn new things and hear other opinions. I certainly got my money's worth when I attended a lecture by Dr. Doug Graham a few years ago. I heard many things from Dr. Graham that seemed outside mainstream nutrition—but he backed up what he said with research, and his own physical condition was a strong testimony to the correctness of his ideas.

The most “outrageous” thing I heard that night was a statement that wheat and other gluten grains contain opiates. I was skeptical. I had been teaching nutrition for a long time and had never heard that before. When I got home, I immediately went to my friends Medline and Google to get their opinions. They told me that Dr. Graham was right. For example, research by Dr. Paul Shattock at the University of Sunderland in England had identified gliadinomorphins (gluten grain opiates) as a likely trigger for many cases of autism. When these grains were removed from the diets of autistic children, the majority of them became symptom-free. Wow!

I purchased a few of Dr. Graham's publications that evening including the first edition of *Grain Damage*. After reading for awhile and reviewing my notes from the lecture, I decided to try his suggestions, including removing grain from my diet. I estimated I would only last about three days, but what did I have to lose? Actually, I lost a lot: sixty pounds of fat and the symptoms of what I had thought was normal aging. It is now about four years later, and I am in much better health and much more active than I thought possible at the time I started.

When I first heard him, Dr. Graham was a voice in the wilderness. Now, others are starting to catch on. Books such as *Dangerous Grains* and others have now been published. While these books are informative,

none of them provides the health-giving message as simply and effectively as the small volume you now hold in your hands.

Seventeenth-century physician Thomas Moffett said, "We are digging our graves with our teeth."

Dr. Doug Graham said, "If you find yourself in a hole and want to get out, first you have to stop digging."

Doug started his lecture that night by saying that he was not trying to convert anyone to anything. He just wanted to share what had worked for him. He said he was providing tools—not rules. *Grain Damage* not only gives you the tools to stop digging, it will help you climb out of that early grave and fill in what you have already dug.

Read, enjoy, and change your life.

James H. Guest, D.C.
Professor of Clinical Nutrition and Laboratory Diagnosis
Parker Chiropractic College

Introduction

It is never easy to go "against the grain" of society. The old saying, "never talk about politics or religion" should really be "never talk about politics, religion, or food," as people seem to have equally strong feelings and convictions about diet. Having experienced multiple health and performance successes by modifying my dietary regimen, I feel that it would be wrong of me to remain silent on this issue any longer. While I understand that mine is not a popular opinion, it is a health-enriching one. Smokers, drinkers, and drug users do not find campaigners against their self-destructive habits particularly popular either, yet they cannot argue that their practices are nurturing or health building. But, to speak out against a dietary "staple" consumed by almost everyone is tantamount to heresy.

Humans thrived for ten million years without consuming grains. Throughout the past several centuries, explorers have repeatedly encountered societies worldwide who still did not use grains and always commented on their remarkable beauty, endless vitality, and robust health.

It is my position, which I believe I can support beyond argument, that the failed experiment of feeding humans on starch's mostly empty calories must end before we destroy ourselves. There are currently no grain-eating societies who make the claim of exceptional health.

If you are an athlete looking to improve your performance, believe you have problems with or addictions to grains, have failing health, or just want to experience life as a fully healthy individual, then I sincerely recommend that you question the wisdom of eating a grain-based diet.

I hope you can read this book with an open mind, considering the facts as presented, perhaps even removing grains from your meals for a time before deciding whether they should be part of your diet. Nature's guidelines are extremely clear. If you choose to live according to Nature's plan, you can expect a level of health greater than any you have ever experienced.

*Is the moon made of cheese? Is the Earth flat?
Does royalty really have blue blood?
No, but there was a time when
everyone believed these were so.*

Ingrained

There has been a tremendous push in the past hundred years promoting the use of grains in the human diet. Marketing initiatives that foist upon us grain products such as cereals, pastas, breads, pizza, and rice have reached an all-time high. Professionals from many disciplines are touting grain as the ultimate health and fitness food, the athlete's best friend.

Doctors, dieticians, and nutritionists are prescribing diets based on grains as the answer to many health problems, especially heart disease. Research scientists have implied that the consumption of more cereals in our diet may be the key to reducing our risk of cancer and other deadly diseases.

Environmentalists lobby for more human grain consumption. They maintain that this will create less demand for animal-based foods and reduce the massive amount of animal waste that is fouling our water supplies. Those involved with feeding the hungry contend that grains are the solution to our worldwide food problems. They say that we could feed fifteen times as many people if we fed them the grain directly,

*Every single advancement on the planet
was made by a nonconformist.*

*Criticism is
the mother of improvement.*

instead of feeding them the grain after it has been consumed by livestock and transformed into living protein and fat.

Animal rights activists tell us that eating grains is not only healthy for the animals (since we could eat grains instead of eating animals) but, because we could save trees and live more compassionately, it is exceptionally healthy for the whole planet. Personal trainers and athletes from every discipline are apparently also in agreement, as they are recommending and eating more grains than ever before.

"Carbo loading," having been proven many times over by research scientists to be totally ineffective, came into vogue in the last twenty years. Of course, scientists and athletes alike knew long before the concept of carbo loading was introduced that the human body has no facility for storing extra carbohydrate except by converting and storing it as fat.

The tragic failure of carbo loading (Americans are fatter, not fitter, than ever) has provoked a dietary backlash wherein millions have embraced the low-carb craze along with all of its dangerous health implications. While many experience short-term weight loss as a result of

*First, the steak is "out" and potatoes are more "in"
than ever, then potatoes are "out" and steak is more
"in" than ever. What's going on here?*

***The illogic of low-carb diets:
You can eat all the butter and mayo you want,
but you have nothing to put them on.***

eliminating forty percent of their caloric intake, the increased risk of heart disease, stroke, osteoporosis, diabetes, kidney disease, and breast, prostate, and colon cancer is astronomical. Rather than blindly accepting the latest dietary trend to overeat on animal protein and fat, or one of rampant starch consumption, let's examine the facts.

***A diet based upon fruit requires the consumption
of neither condiments nor supplements.***

***Could the old adage, "crutches cripple"
apply to our beloved "staff of life"?***

The Staff of Life

We have learned since childhood that grains are the "staff of life," sustenance we can count upon in times of fire, flood, famine, drought, siege, pestilence, or other crop failure. Because of their ease of storage, grains have enabled civilizations to survive until more suitable and nutritious foods again became available.

But let's examine this metaphor a bit, for its most common interpretation belies another less favorable image, which just may be more fitting. What, really, is a "staff"? It is a stick, pole, or rod traditionally used as a support or crutch. We know that if we take a perfectly healthy person and put him on crutches, his leg muscles will begin to wither, eventually becoming nonfunctional.

Grains, like any crutch, become detrimental to us when we rely on them constantly, three meals per day. Instead of thriving, we are weakened by their continual usage. *Is it possible that our beloved grains are actually crippling us?*

***There are several viewpoints demonstrating
that grains are downright harmful.
This is not a popular opinion.***

*For more than 99.9% of the time that
man has walked the Earth, he has done so
without consuming any grains.*

Historical Background

Paleontologists have recorded that humans have been walking the Earth for nearly ten million years without any use of grains. Modern man has only been cultivating grains for about ten thousand years, approximately the same period during which he has used fire. The negative impact of this unnatural practice upon humankind and the planet is astounding.

As author, evolutionary biologist, molecular physiologist, and biogeographer Jared Diamond observes, many of history's great civilizations brought about their own extinction by evolving into agriculture-based societies. He expounds on this idea in his essay, "The Worst Mistake in the History of the Human Race," wherein he describes how farming, and in particular the farming of grains, led to the demise of entire human populations. He explains that early farmers began growing just one or two starchy crops, which were then relied upon as the main food source for an entire population. This created a scenario in which calories were obtained without much expenditure of energy. But, such cheaply acquired calories came with a huge price tag: inadequate nutrition.

*Fruits and shoots (young, tender greens)
have successfully made up the bulk
of the human diet for millions of years.*

*Dr. Graham's first rule of holes:
When you are in a hole and wish to get out,
first you must stop digging.*

Diamond also makes clear his concern about our current reliance upon grains. He notes that wheat, rice, and corn alone provide most of the calories consumed by humans today, and that each of these is lacking in certain vital nutrients we need to exist.

Before the use of grains, what did humans eat? They ate the foods that were easiest to obtain: fruits, vegetation, nuts, and seeds. They may also have been scavengers, opportunistically taking the few animals that Nature provided. Of course, they would have had to fight off other scavengers such as vultures, hyenas, and wild dogs, a dangerous plan at best. Millions of years later, humans learned to hunt, but gathering fruits remains considerably easier than hunting, and much safer.

During the "Golden Age of Man," almost three thousand years ago, historical records indicate that man thrived brilliantly on a diet composed primarily of fruit, with the addition of some tender vegetables. This time period produced a disproportionately huge number of history's greatest thinkers, given that the world's population was barely twenty million.

*In nature there are no exceptions:
animals with similar anatomy
and physiology thrive on similar foods.*

Bread simply does not exist in nature.

Does Grain Eating Come Naturally?

Our natural foods taste good, just as they are produced by Nature. In particular, people always find fruit eating to be pleasant. Addiction, guilt, and overeating are not usually associated with its consumption.

At best, raw grains taste unpleasant and bitter, even when they are sprouted. More often, they are inedible or poisonous if eaten in the field. Even birds, the only natural grain eaters, feed their young on insects, as grains are deficient in protein and nutrients.

It is common for people to experience severe cravings for refined grain products, and often to binge on them. When starches are consumed, people wake up the next day and go through unpleasant periods of feeling foggy, hung-over, or sedated. Should they stop consuming grains, symptoms of detoxification and withdrawal emerge. It is best to avoid substances that result in such powerful dependencies, whether we choose to call them drugs or foods.

Anatomically, humans are classed as anthropoid primates, along with gibbons, chimpanzees, bonobos, gorillas, and orangutans. There is not one example in nature of an animal with anatomy and physiology similar to

It is easier to overeat on starches than on any other food. People who shun starches are simply never overweight.

ours that consumes grains. All of the anthropoid primates thrive on a diet composed almost exclusively of fruits, vegetables, nuts, and seeds. (Some do eat insects, small vertebrates, or even flesh, on occasion, but more than 99% of their diets consist of plant matter.)

Bonobos, our closest genetic “cousins,” are considered the most intelligent (after humans). They consume mostly fruit and eat about five percent of their calories as vegetable matter. The anthropoids that are farthest from us in terms of both genetics and relative intelligence (mountain and lowland gorillas), rely mostly on vegetation and eat much less fruit in the wild, as they have limited access. In zoos, they eat a diet predominated by fruit.

Fruits, vegetables, nuts, and seeds comprise the complete list of foods to which we are biologically adapted. The consumption of grains, and any other foods that do not suit our design, is a serious step down, nutritionally. Coupled with the habit of cooking, a food adulteration not practiced by *any* other species, the outcome is nutritional bankruptcy.

There isn't even any bread on a breadfruit tree.

Because they must be cooked to be consumed, grains cannot, by definition, be considered a “natural” food for mankind.

In school, the teachers called it “worthless white bread.” They said there was more nutrition in the cardboard box than there was in the cereal.

Nutrition

Our greatest nutrient needs are for water and simple carbohydrates; starches provide neither, while fruits are the best source of both. Fruits offer much more than sugar and water; they are rich in vitamins and minerals, while starches are markedly low in both. In particular, vitamin C, a water-soluble complex we must derive from our diet, is absent in starches, yet abundant in fruits.

Cereals, breads, pastries, pastas, pretzels, pizza crusts, and other grain-based foods lose much of their original food value during refinement and other processing to make the grains edible. Even cooking a food counts as a refining process, as not only are the nutrients compromised but antinutrients are created and water is driven off. This results in food that will not sustain us. In spite of advertising insinuations to the contrary, no cooked food can properly be considered a whole food.

Vitamins, minerals, carbohydrates, proteins, fats, enzymes, coenzymes, antioxidants, and phytonutrients are damaged, deranged, or destroyed by the heat of cooking. This is not news. Such information has

*There is no scientific basis
for eating cooked food.*

*Did you ever try to eat
even a tablespoonful of flour?*

been available to the mainstream for more than forty years, some of it a lot longer than that.

What does remain after cooking are the calories. Therefore, when we eat starches, we consume the maximum number of calories with the minimum amount of nutrients. This ratio is the exact opposite of what anyone would desire. Dr. Emmet Densmore, author of *How Nature Cures*, one of the first to speak out against grains, pointed out that humans are fruitarian animals and declared bread to be “the staff of death.”

A substance known as phytic acid, found in raw cereal grains, is well known for its tendency to bind with calcium and interfere with its absorption. Grains also contain substantial quantities of acid-forming minerals, such as phosphorus, potassium, and magnesium. During the process of digestion, the body must yield up calcium from the bones, a powerful alkaline mineral, in order to neutralize the acidity of grains. Eventually, people on a high-grain diet run predictably low on calcium, often resulting in a common bone-thinning condition known as osteoporosis.

Grains contain very little calcium, and they are also low in sodium, choline, iodine, sulfur, and other alkaline minerals. On the other hand,

*Wheat is simply not
all that it is cracked up to be.*

*Utopian islands invariably offer fruit,
not bread.*

fruits and vegetables contain from ten to one hundred times as much calcium and other alkaline minerals as do grains, when measured in terms of calories.

Does it ever seem peculiar to you that dog and cat food commercials stress the fact that optimum nutrition gives your pet the best chance of growing well and living healthfully? Why, do you ask, are children's foods marketed instead for their colors, shapes, and exciting flavors, but rarely for their nutrient quality? Why are adult foods promoted for their convenience, or their zest, zing, and sizzle, but seldom for their health-building qualities.

Why are these food commercials invariably followed by commercials for antacids? Do you ever wonder?

*When it comes to empty calories,
starches take the cake.*

*Fat cells almost never die.
Instead, they shrink up and lie dormant,
waiting for their chance to flourish.*

Nutrition: Fat

Heating foods generates the creation of substances known to be harmful to humans. Free radicals, created by the heating of fats, have been proven to be carcinogenic, as is acrolein, a violently neurotoxic vapor emitted from frying oil. (Acrolein is also one of the powerful irritants present in cigarette smoke and automobile exhaust.) Heated fats lower the blood's ability to carry oxygen and also block capillaries with large fat globules. Additionally, the stickiness of heated fats causes deposits to build up on the vascular walls, a major contributing factor in atherosclerosis and other conditions that lead to heart disease.

Unfortunately, it has become traditional for us to use generous quantities of heated fats (such as milk, butter, lard, sour cream, cheese, oils, margarine, and the fats that are inherent in meats) whenever we consume starchy foods, and our health suffers accordingly. Cereal and milk; bread with butter, margarine, mayonnaise, cheese, or meat; bagels with cream cheese, baked potatoes with sour cream; potatoes fried in oil; tortillas fried in lard; cakes and cookies made with butter, eggs, and milk; these are typical of our love affair with the starch/fat combination. This habit is easy to understand, because it is the fats, and not the bland starches,

*Western man traditionally consumes
a higher percentage of fat with his starches
than with any other foods.*

*Calorically, the starch-based diet
could be referred to as the fat-based diet.*

that provide a sense of satiation and heightened flavor. These cooked-fat accompaniments tend to be animal based, and the cholesterol, casein, uric acid, and other toxic, disease-causing substances in them seriously compound the health consequences of their consumption.

Excess fat in the diet is never a good idea (I recommend a diet where fat makes up only 10% of total calories consumed). While plant fats are healthier for us than animal fats, and raw fats are more nutritious than cooked fats, still, too much fat is too much fat. In order to steer clear of grain damage, and the high fat consumption that almost always accompanies it, it is necessary to drop starchy food from the diet altogether and replace it with copious amounts of fresh fruit.

*Not only do heated fats cloud one's thinking,
hasten cancers, and foster heart disease,
they are fattening.*

*The nutritional damage done by eating grains cannot
be undone by an otherwise healthful diet. This would be
like trying to make up for smoking with extra exercise,
or compensating for axing a tree by feeding it fertilizer.*

Nutrition: Protein

Proteins are broken down into their component amino acids through an enzymatically catalyzed process referred to as proteolysis, usually in the presence of hydrochloric (stomach) acid. This is normal. Abnormal, non-proteolytic changes occur to proteins when they are heated, resulting in what are called "denatured proteins."

The specific, unique qualities that make each protein special are lost in the denaturing process. Consumption of denatured proteins has been linked to arthritis, cancer, many organic degenerative processes, and rapid aging. Denatured proteins, like denatured alcohol, are unfit for human consumption.

Most animal proteins are at least fifty percent fat, calorically. As we normally consume proteins with our starches, it becomes plain that we are subjecting ourselves to triple jeopardy when we ingest this noxious combination: free-radical-rich fat, denatured protein, and the nutritionally empty starch itself.

*A poison is always poisonous,
regardless of the dose.*

*How can we take the fiber out of fruits and vegetables
to make juices in the belief that this is healthful,
yet add fiber to our breakfast cereals
in the belief that this, too, is healthful?*

Nutrition: Fiber

The fiber in grains must be considered a health destroyer. Humans have delicate digestive systems. Just look at the number of people with digestive problems: nine out of ten in the United States. Our digestive systems require the soft, soluble fiber found in fruits and tender vegetables. Grain's fiber, however, is coarse and sharp like finely ground glass. Nutritionists refer to it as insoluble fiber. It acts as an irritant in our system. Irritation of the mucosa of the intestine is considered a risk factor in many different diseases, including ulcers, diverticulosis, spastic colon, celiac disease, Crohn's disease, colitis, irritable bowel syndrome, and colon cancer.

The presence of insoluble fiber in the intestines causes food to move through the bowels more rapidly than normal, reducing nutrient absorption. Coupled with the irritating quality of insoluble fiber, this rapid movement of foods leads to malabsorption syndromes, nutritional deficiencies, and overall loss of health.

In the production of refined flour, bran is left over. This flavorless and bowel-irritating waste product is then sold, at an inflated price, as if it were a health food.

*We are being fed the leftovers
and being told that it is healthful.*

*If you cannot make a complete meal of it,
it is probably not people food.*

Digestion

The human digestive system is complex, sophisticated, and highly sensitive. Its existence is based on the fact that much of what we take in as food is not of direct use to the body. Food must be broken down into simpler molecules to be absorbed; this is digestion. Improperly digested food and food that is not of use to the body is eliminated. The colon absorbs water left over after digestion is completed, thus solidifying the feces.

The digestive process can be divided into two main categories: mechanical and chemical. We will focus on the chemical. Chemical digestion, directed by the brain, happens in three major areas: the mouth, the stomach, and the small intestine. This digestive action is dependent upon receptors that send messages to the brain, telling it which type of food is being worked upon. The brain then responds accordingly, sequentially utilizing a barrage of water, digestive enzymes, enzyme precursors, coenzymes, electrolytes, acids, bases, buffer salts, hormones, extrinsic (vitamin B₁₂) and intrinsic (mucoprotein) factors, and other secretions far beyond the capabilities of our greatest chemists to understand, let alone replicate.

*In an orchard of ripe fruit,
you could eat to your heart's content.
In a ripe field of wheat, you would starve to death.*

***Your eating habits cannot be considered
“good for you” if they result in indigestion.***

Chemical digestion begins in the mouth with the secretion of amylase, a starch-splitting enzyme. Stomach acid neutralizes the amylase and effectively stops starch digestion. It resumes in the small intestine. Protein digestion is purely mechanical in the mouth and nonexistent in the intestines. Proteins are broken down from long to short chains in the stomach, in the presence of hydrochloric acid.

When starches are consumed without proteins, the acidity of the stomach approaches neutral, allowing starch digestion to continue. When proteins are consumed without starches, the acidity of the stomach becomes as strong as is humanly possible, thus fostering proteolysis. The pH of the mouth and intestines are also capable of varying from mildly alkaline to mildly acidic, though predominantly alkaline, at about 7.4, is considered healthiest.

Herein lies the problem: when proteins and starches are consumed at one meal, the body is asked to provide two opposing chemistries in the same place at the same time. This cannot work, because they effectively cancel each other out. The result is impaired or partial starch digestion and impaired or partial protein digestion. The digestive process takes

***Fermentation results in two products: alcohol and gas.
The alcohol is not good for you.
The gas is not good for anyone else.***

***If you wish to know whether your food
rotted while still inside you, use your nose
when you see your food for the second time.***

longer than it would to digest either substance on its own, and it requires considerably more energy to do so.

Since animal proteins contain no fiber, they pass through the digestive system more slowly than other foods. At one hundred degrees, in a dark, wet environment, undigested meat will go bad (rot) rather rapidly. The partial digestion of meat that occurs when it is eaten with grains very often accounts for the putrefaction so obvious when feces are expelled.

Grains, fortunately, do not tend to putrefy. They do, however, ferment. Fermentation results from the mixture of sugar and starch found, for example, in a raisin bagel, fruit pie, or dessert after a starchy meal.

Two products result from the fermentation of grain: alcohol and gas. Alcohol quickly penetrates the gut lining and becomes blood alcohol, giving rise to the phrase “food drunk.” Drivers have actually failed Breathalyzer tests for blood alcohol simply from the alcohol produced in their digestive tracts! Alcohol is a protoplasmic poison, meaning that it destroys every cell with which it comes into contact (the lining of the mouth and digestive tract are spared this fate, because they are coated by a protective mucosal layer). The production of alcohol within the gut is

***Going “against the grain”
may be the healthiest choice you ever make.***

*Grains are notoriously bland and flavorless.
The word milquetoast has earned
its reputation honestly.*

never a good thing, as it is absorbed into the bloodstream where it does its usual damage.

The gas formed during fermentation is eventually released via the anus. While this may not inherently be health destroying for its creator, the release of gas is generally considered undesirable by everyone else present.

*Grains drain our energy, our economy,
our environment, and our health.*

*Before we began farming grains, the human
population doubled approximately every twenty
thousand years. Today, our population is doubling out
of control: once every twenty years.*

Energy

To produce grains for food, copious and redundant use of energy is required. Land must be prepared, planted, fertilized, sprayed, watered, and eventually harvested. Each of these procedures requires huge amounts of energy. The extraction, refining, and provision of petrochemicals to run the machinery are global in their detrimental effects. The production of pesticides, herbicides, fungicides, growth stimulators (plant hormones), and fertilizers are all energy intensive, and they then require even more energy to be applied to the fields. After harvest, chaff must be separated from grain, and still we do not have an edible product. To make grains digestible, they must be well cooked, a procedure that requires yet more energy.

Upon consuming your starch meal, your body must perform many complex processes to utilize what is left after cooking, which is, primarily, only the calories.

Before cooking, we refer to these calories as complex carbohydrates, an indigestible form of sugar made palatable through the application of heat. During cooking, chemically referred to as caramelization, some starches are broken down into simpler sugars. The digestion of starch,

*Every cell of your body is fueled
solely by simple sugars.*

***If you are not improving your diet,
you are coasting.
You can only coast downhill.***

however, is energy intensive and may take anywhere from thirty-six to seventy-two hours. This immediate, high energy demand, coupled with delayed energy return, explains why so many people feel lethargic after a starch meal. All available energy is being used for digestion.

Starches are touted as low-calorie foods. If we subtract the calories required during the processes of digestion, the net energy gain is low. It is the fat we put on our starches that provide the really big calories, exactly the opposite of what most people desire.

The digestion of fruit is a relatively simple process. What we refer to as "ripening" is actually the fruit converting starchy, complex carbohydrates into sweet-tasting, simple carbohydrates. In effect, the fruit is digesting itself for us. The digestion of fruit demands considerably less energy than the digestion of starches, freeing energy for other processes such as organ and muscle functioning.

Fruit, which must be worked upon for minutes in your stomach and eighteen hours in your intestines, yields more energy per calorie consumed than starches, which can require as many as twelve hours in your stomach and three days in your system.

Humans are sweet seekers.

***The laws of Nature cannot be broken,
only proven.***

Health

The list of health problems associated with eating grains is long. Asthma, allergies, gluten intolerance, celiac disease, digestive disturbances, mucous and congestive conditions, yeast infections, several types of arthritis, several types of autoimmune disease, and even chronic overeating are all linked to the consumption of grains. This is not to say that grains are all bad, for they are a far better choice than animal alternatives. However, the healthiest choices are fruits and vegetables.

Congestion, asthma, and allergies are of special concern to us. They hinder breathing, alter the clarity and tone of the voice, cause us to quickly become tired, and interfere with social interactions. Mucus is produced in many parts of the body by a complex structure referred to as a mucous membrane. The production of mucus serves a double purpose: to protect the delicate layers of tissue that are deep within the mucosa, and to act as a transport medium for the removal of irritants from the body.

If you put lemon juice in your mouth, for example, the strong ascorbic acid would actually burn the lining of your mouth were it not for the mucous membrane. Should the lemon juice remain in your mouth, you

***All of us respond adversely to gluten consumption.
Celiac disease affects everyone who consumes gluten,
to some degree.***

***A mucous membrane will only produce
exorbitant volumes of mucus if it is subjected to
irritation. Remove the source of irritation
and the mucus production will cease.***

would continue to produce mucus until the acid was sufficiently diluted or swallowed. Many people mistakenly believe they are ridding their body of mucus by drinking lemon juice. This is not so; they are simply causing their digestive tract to produce mucus in response to the lemon juice.

Many sufferers of nasal congestion, asthma, and allergies are pleased to discover that their symptoms are relieved once they embark upon a starch-free diet.

Cooked grains have little flavor on their own. Commonly, we add flavoring agents such as salt, heated fats or oils, refined sugar, artificial sweeteners like aspartame (a known neurotoxin that causes cancer, brain damage, neurodegenerative diseases, and birth defects) and/or powerful spices to make grains more palatable. These condiments are health destroyers and bring with them to the table an array of health problems.

***You must live healthfully
to have health.***

***If we were all crazy,
who could tell?***

A Little Crazy?

Gluten, a protein found in many grain products, has been named as a causative factor in several psychoses and neurological disorders. It has been proven to chemically contain fifteen different opioid sequences, or morphine-like molecules. Opioids that come from outside the body are called "exorphins." Exorphins are labeled by scientists as addictive and neurotoxic. They have psychoactive properties and cause related behavioral problems such as addictive eating patterns. Since the mid-1960s, scientists have repeatedly linked gluten consumption to learning disorders and schizophrenia.

Physical effects of opioid consumption include nausea, sedation, truncal rigidity, euphoria, dysphoria, and miosis (pupillary contraction). Opioids are known to interfere with our neurotransmitter chemistry, cause various types of epilepsy, and result in digestive disturbances such as constipation, urinary retention, biliary spasm, reduced production of ADH (an antidiuretic hormone that results in reduced urine production), slowed gastric emptying, and slowed digestion.

***Could we all have gone
a little crazy?***

*Want to know if you're addicted to grain?
Try going one week on a starch-free diet.*

Are Grains Addictive?

Some addictions are easier to spot than others; the illegal ones are especially so. Other addictions, such as tobacco and alcohol, go unnoticed until it becomes apparent that the person has "a big problem." For the addict, there is no middle ground. His only solution is to totally cease using the substance in question.

Although not everyone who smokes is addicted, cigarettes are considered addictive. The same is true for many other addictive substances. While some people can participate on an infrequent level and never experience addiction, most people must deal with uncontrollable urges to "use" again and again. Have you ever had a really strong craving for something starchy?

Primarily, people with eating disorders say they experience problems with starches, and especially the starches we call sweets or pastries. I have asked thousands of people which type of food they are likely to binge on: fruits, vegetables, proteins, fats, or starches. The answer is almost invariably "starches." Chocolate, although not mentioned as a possible response, runs a distant second as a reply. Many people have no difficulties

*Have you ever once been able to resist
freshly baked bread?*

*Do you ever just
"gotta have" a pizza?*

about referring to themselves as "chocoholics." Could most of us be "starchaholics"?

Drug users are notorious for their radical mood swings. Not just elation to depression, but clarity to confusion, cooperative to difficult, positive to negative, sensitive to numb, sociable to introverted, energetic to lethargic, pleasant to irritable, peaceful to aggressive, and gentle to violent—often in a flash.

One characteristic of addictive drugs is that they leave their users emotionally numb. The hope for emotional relief is often the initial reason people use addictive substances. It is generally understood that we are just adding a bigger stress to our already overloaded feelings of stress in an effort, temporarily at least, to make us less responsive to the initial stresses.

With a belly full of starch, most people are capable of no more than lying down and falling asleep in front of the television. It is common for people to become torpid after a holiday meal, sometimes falling into a stupor, full of breads, stuffing, potatoes, and a pastry or two. These reactions to a heavy starch meal are the typical reactions

*Replace your addiction to starch
with a preference for fruit.*

Appetite, which is specific, (in stark contrast to hunger, which is nonspecific), is the socially acceptable word for craving. Craving is the socially acceptable word for addiction.

experienced by "users" to narcotics. The intensity of the reaction simply depends on the dose.

The most common feature of substance addiction is its frequent use. Most Americans eat starch a minimum of three times daily at meals, and another two or three or more times as snacks. This definitely qualifies as frequent usage, as it is almost constant. But then, we were trained to eat starch as infants, since before we developed the enzymes to digest it. As children, it sedated us well.

If you had to choose between plain fruit and plain starch, would there be any doubt as to your decision?

Virtually every aspect of fitness improves or declines in direct relationship to the quality of the diet.

Athletic Performance

While people continue to consume more starchy junk than ever, the relationship between physical performance and the dinner plate has become more obvious, and more important. Athletes today are more competitive; they train harder and smarter. As they push the limits of human performance, they leave less and less to chance. Almost every dietary gimmick has been tried in a failed effort to gain an advantage. Simply stated, if your diet is not optimum, it is hurting you.

All athletes will notice improvement in performance if they upgrade the quality of their food choices to a diet of raw fruits, vegetables, nuts, and seeds. Every world-class athlete with whom I have worked has mentioned improved strength, endurance, speed, flexibility, balance, reaction time, focus, and many other intangibles once they made the switch to a starch-free diet.

A major issue of concern for athletes is acid/alkaline balance. In health, our bloodstream always remains alkaline, maintained at approximately 7.4. If the pH of the blood changes even two-tenths of a point, you will likely die. The minerals in starchy foods, however, are acidic:

You cannot build first-rate athletes from second-rate materials.

*The alkaline tide is an emergency response
to a life-threatening situation.*

chlorine, sulfur, and phosphorus. Consumption of starches drains our alkaline reserves, resulting in lowered performance possibilities.

Once starchy food leaves the digestive system and enters your bloodstream, acids enter the blood. Fortunately, your body maintains a reserve of calcium, its most alkaline mineral, plus several buffer systems to neutralize the acids in the event that the lungs, liver, and kidneys fail to keep pace with your acid creation and/or intake.

The phenomenon of bicarbonate flowing into your bloodstream to neutralize acidity after meals is referred to as the "alkaline tide." Most doctors consider the alkaline tide to be normal to our physiology, the flip side of the intense acid production needed from our stomach in a vain effort to digest animal protein. Since animal proteins are also dense with acid minerals, normal metabolism must be delayed while the emergency threat to blood pH is addressed. This delay results in a reduction of performance potential with each occurrence.

Improved nutrition and better digestion allow the athlete to direct more energy toward his workouts and guarantee a more speedy recovery. Also, as health is enhanced and the athlete becomes more supple, the risks of overuse and other injuries decrease.

*How many more times do you want to learn how to eat,
each time thinking that it is the last?*

*For uncommonly excellent results,
one must have uncommonly excellent habits.*

Famous Vegetarian Athletes

- ◆ **Murray Rose**, considered the greatest swimmer of all time
- ◆ **Edwin Moses**, undefeated in over ten years of running hurdles
- ◆ **Walter Payton**, one of American football's greatest running backs
- ◆ **Johnnie Weismuller**, world-class swimmer, famous as Tarzan
- ◆ **Bill Pickering**, Great Britain's most famous channel swimmer
- ◆ **Dave Scott**, holder of a ten-year reign as "Mr. Ironman"
- ◆ **Martina Navratilova**, perhaps tennis' most successful superstar
- ◆ **Killer Kowalski**, pro wrestler; his career spanned three decades
- ◆ **Desmond Harris**, Heisman trophy winner
- ◆ **Bill Walton**, NBA Hall of Famer
- ◆ **Jamie Parsley**, Great Britain's most famous bicyclist
- ◆ **Robert Parish**, one of the NBA's "50 Greatest Players"
- ◆ **Carl Lewis**, Olympic medalist known for competitive longevity and freedom from injury in sprints and long jumps

*Grains are famous for slow energy release;
athletes, for quick energy release.*

*The athlete of the future will treat food like
any other part of his/her training program.
The only way to realistically expect the best athletic
performance is to provide the best fuel.*

- ♦ **Andreas Cahling**, professional bodybuilder, Mr. International
- ♦ **Peter Burwash**, tennis pro, Davis Cup winner
- ♦ **Bill Pearl**, bodybuilder, four-time Mr. Universe
- ♦ **Pete Maravich**, NBA superstar
- ♦ **Ruth Heidrich**, six-time Ironwoman triathlete
- ♦ **Sixto Linares**, world record holder, 24-hour triathlon
- ♦ **Amby Burfoot**, world-class marathon runner, second fastest U.S. marathoner of all time

*A disproportionate percentage of
the world's best athletes in almost every sport
invariably turn out to be vegetarian.*

*We are told that fruit's sweetness will "spoil" the
appetite. Isn't that the very reason we eat, in order to
spoil our appetite, to satiate ourselves?*

A Weighty Issue

Every person has a "sweet tooth" that is designed to be satiated by the consumption of fruit. Your blood sugar rises, gently and almost instantaneously, upon eating fruit, supplying your every cell with its only source of fuel: simple sugar. The brain monitors blood sugar, and when blood sugar rises, appetite drops. This unique feature makes it almost impossible to overeat on fruit. Remember when your mother used to discourage you from eating sweets before your meal because it would ruin your appetite? Many people comment that they feel satisfied and full, often for the first time in years, after eating a relatively small quantity of fruit.

The gradual rise in blood sugar that starts immediately upon eating a meal of fruit is followed by an equally speedy and gentle decline toward normal levels. Eating fruit keeps blood sugar levels on an even keel, within healthy limits, and does not generate sudden spikes or dips. Fruits must be eaten whole, however, as juicing removes fiber and dehydrating removes water, both of which are vital for nutrition and proper blood-sugar metabolism. The fractional foods that remain after dehydrating or

*Your "sweet tooth" or "fruit tooth"
is your best guide for choosing healthy food.*

When it comes to weight control the choice is easy: fruit or fat. The likelihood that you will add butter, mayo, cheese, oil, or other fats to fruit is almost zero. Yet without those items, grains are almost unpalatable.

juicing contain an unnatural concentration of sugar and tend to generate serious imbalances in the body.

The high-fat dietary approach (ubiquitous amongst raw fooders who limit fruit intake) produces eccentric and extended spikes in blood sugar, as well as the problems that accompany sustained elevated blood sugar levels, which include chronic fatigue, candida, and diabetes.

Our bodies convert any extra complex carbohydrate calories we may consume to fat. Starch consumption, however, does not result in loss of appetite. On the contrary, it is easy to overeat them. It seems that we overeat pizza or pasta every time. Since blood sugar does not rise, the only way one feels satiated is to eat until stuffed. It is likely there would be no obesity problems if the people of the world ate fruit instead of grains.

Grains are the all-time number-one cereal killers.

In terms of yield in pounds per acre, grains are the least productive of all plant foods.

Environment

Modern grain farming has resulted in the loss of almost all of our topsoil. What was six to sixteen feet of topsoil a century ago has been reduced to six inches or less on most of our farms.

In a world where potable water has become a commodity, over half of the total water used in the United States goes to watering livestock or feed for livestock.

In nature, thousands of different plant species tend to intermingle as they grow, a phenomenon known as biodiversity. Today, farmers devote huge tracts of land to only a single crop. This monoculture agriculture leads to susceptibility to many kinds of crop failure and permanent loss of plant varieties, and it leaves many strains of plants vulnerable to botanical plague and zoological pestilence.

During the great floods of 1993, for example, millions of acres of grain crops were destroyed in the United States, while tree crops flourished. Whereas grain crops lead to depletion and loss of precious topsoil, orchards pull their water and nutrients from deep down in the subsoil, assist in the building of topsoil and aid in nutrient recycling.

An acre of orchard will feed 250% more people than an acre of grain.

***Plant a tree and it will yield for generations.
Plant grains and you are lucky if you get a crop.***

Fruit and nut trees are durable, they protect the soil from erosion, and they encourage biodiversity.

Trees also act as grand air filters, causing particulate matter to fall to the ground. As we replace fields of grain with orchards, we can expect our air to become cleaner, sweeter, and healthier for us.

The following is a partial list of toxic chemicals used in the processing of grain. How much residue from these chemicals remains in the grain itself, versus how much is simply dumped in concentrated form onto our soil is of little consequence. In either case, these chemicals end up polluting our bodies and the environment.

- ◆ mercury
- ◆ cyanide
- ◆ ammonium salts
- ◆ chlorine

(Each of the above, in high enough doses, can cause insanity or even death.)

- ◆ fluorine
- ◆ mineral oil
- ◆ alum

(These are high-potency toxins.)

***Trees are often referred to as
“the Earth’s lungs.”***

***Cutting our forests to gain land for grain
is like draining your blood to lose weight.***

Ecology

Living space has become a constant problem for the human race as well as for the other plants and animals with whom we share the planet. More and more, we are competing with other species for living space and in so doing, pushing many to the brink of extinction. A field of grain is basically two dimensional; it provides little more living opportunity or protection for wildlife than if it were paved. Trees, on the other hand, are three dimensional, and provide myriad living space opportunities for creatures of many types. Since food production yields are greater on trees than on a flat field, more space can be devoted to other human needs such as recreation or rural living while at the same time offering shelter and protection for wildlife.

On land, trees are the main converters of the deadly gas carbon dioxide into life-sustaining oxygen. Just four hundred years ago, the United States was one huge forest from Maine to Texas. On the land where we are cutting down our precious trees to plant grains, we are also increasing our use of oxygen-guzzling, carbon-dioxide-spewing machines. This policy is a dead end and can only lead us to environmental disaster.

***Before the introduction of grains,
a squirrel could go from Maine to Texas
without ever leaving the treetops.***

The toxins of war—including chemical weapons such as chlorine, mustard, and the organophosphates, explosives such as nitrates, and radioactive waste—have all been incorporated into the human diet.

Do You Believe in Magic?

People want to believe in miracles, especially the kind that defy the laws of nature. Of the miracle cures, wonder drugs, and other flops of the past century, few exceed in magnitude the failures of “superwheat,” “miracle rice,” and food irradiation.

The chemical revolution began in earnest shortly after World War II. The production of nitrates, essential in munitions during the war, then became the primary ingredient in fertilizer. Herbicides, pesticides, fungicides, and growth hormones rounded out the toxic chemical assault. Using these chemicals drastically depletes the soil.

The hybrid dubbed superwheat outproduced all others and was hailed as the solution to the Third World’s food shortage, but the massive amounts of fertilizer required were beyond most farmers’ means. In the United States, the cost of grain skyrocketed as farmers began to use these various noxious chemicals, without which, they were told, they would not be able to compete. Of course, hybrids cannot reproduce themselves, so the farmers had to purchase a new batch of seeds every year.

Sustainable farming methods require that we feed the earth organically in order to produce greater, and healthier yields.

By saying that a food has an extended shelf life, one is admitting that it will not support life of any kind, not even microbial.

“Miracle rice,” which could produce three crops per year instead of the usual two, was also hailed as the solution to the world’s food concerns. Of course, in order for the rice to produce so quickly, it required triple the fertilizer of ordinary rice. This dramatically increased production costs and the amount of toxins spread into the soil.

Perhaps the most dangerous failure with regard to grain has been the program to subject it to irradiation. A byproduct of nuclear energy production, radioactive waste is exceptionally expensive to dispose of. Why not sell it for use on grains and other foods, at the tidy profit of \$50,000 per pound? West Germany experimented with food irradiation and eventually banned the process. The United States tried in 1963 and failed, but it is perfectly willing to try again.

Radiation is toxic poison; it deranges proteins and destroys nutrients while rendering foods unfit for consumption, even for bacteria, and the bacteria know it. As grains already keep for years, a feature that makes them suspect as a human food choice, what can possibly be gained by extending their shelf life indefinitely?

If you eat foods that have an indefinite shelf life, do you think that you increase your chances of living indefinitely?

*Farmers know that we can feed forty people fruit
from the same acreage necessary
to feed one person beef.*

Economics

Grains generate a very low cash flow. In fact, almost all crops produce a higher "pound yield per acre" than starchy foods. The only way to make growing grain profitable is to use huge tracts of land. With population rising and the need for wilderness and recreational areas at an all-time high, using an ever-increasing amount of acreage for growing grain is counterproductive.

Fruit trees, by contrast, not only produce the highest pound yield per acre of all food crops, they also yield the most usable food per acre. The U.S. population could be fed using one-quarter of the land now in use for food production were we to eat a diet of fruits, vegetables, nuts, and seeds.

A steer eats approximately fifteen pounds of grain to produce one pound of beef. The fact that we are raising millions of cattle explains why over ninety percent of our grains are used to feed livestock. We could feed fifteen people a pound of grain each, or one person a pound of beef. But nutritionists figured out long ago that we could feed about two and a half times as many people from an acre of fruit as we can from an acre of grain.

*It is a penalty to be sentenced to bread and water.
Fruit, on the other hand, is always considered a treat.*

Freshness

Grains lose nutritive value once harvested, and they lose even more when milled to flour. The concept of fresh bread is misleading. At best, your grain was harvested last autumn, but flour may be years old before it is used. In storage, grains are subject to infestations of insects, rodents, and molds. To prevent these problems and provide us with grains year 'round, farmers and food processors resort to the use of an array of toxic chemicals and preservatives. If you really want fresh food, it will have to come from the grocer's produce department, or better yet, straight from the garden.

The term "shelf life" indicates the length of time a food may last before it "goes bad." Going bad actually means that microorganisms have taken hold and are thriving on the food. By admitting that a food has an extended shelf life, we are openly acknowledging that this food will not support life of any kind, not even hardy microorganisms.

Food that stays fresh for longer than a few days must be considered suspect in terms of its health-promoting value.

*We are borrowing against the future,
leaving our children to suffer the environmental debt.*

*Grain's claim to fame is its storability,
a feature that nullifies your chances
of ever buying it fresh.*

*If you do not have an appetite for fruit,
you are not hungry.*

Next Time Have Fruit!

Increasing the percentage of whole, fresh, ripe, raw, organic foods in your diet will yield you huge health and performance benefits. And as an added bonus, you will find yourself less dependent on grains.

Although no one regimen is perfect for everyone, a diet where fruits, vegetables, nuts, and seeds are abundant and raw foods predominate will benefit not only your health, but the health of our planet, as well. Viewed from this perspective, it is easy to see that the grain-free diet is not radical; it is truly ultraconservative.

The next time you are thinking about eating grains, have fruit instead. Become the next person to go against the grain and reap the harvest of health.

*Let's sow anew the fruited plain,
where once stood amber graves of grain.*

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† I highly recommend *Improving on Pritikin*, a superb book written by a man who was once Nathan Pritikin's staunchest disciple. This book explains in detail why the high-grain, low-fat vegetarian diet, renowned for its phenomenal success in reversing heart disease, falls woefully short of producing optimal overall health.

Other Authors Speak Out Against Grains

In the years since the first publication of *Grain Damage*, a shift in our collective consciousness has begun to emerge, moving us away from a grain-centered diet and guiding us toward a more healthful alternative. This growing trend manifests itself in the form of low-carb diets, the gluten-free lifestyle, some forms of raw veganism, and environmentally centered food choices.

By their very nature, each of these dietary changes requires at least some degree of understanding that grains are ecologically hazardous and health-robbing "foods." This growing awareness of the grain damage taking place in and around us is further evidenced by the following list of corroborating titles, which have been published in recent years.

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Grains Are for the Birds

In his excellent book *Improving on Pritikin: You Can Do Better* (see bibliography), author Ross Horne indicts grains on the same counts that I mention in this short book, and many more. Here, with permission, is the summary to his chapter 10, "Grains Are for the Birds."

In brief, the objections to grains and grain products as foods suitable to the human system are:

1. *They are deficient in a number of important nutrients.*
2. *They contain substances to some degree poisonous to the system.*
3. *They must be cooked in order to be digested which process further depletes their value and increases their pathological effect.*
4. *They place strain on the digestive system causing hypertrophy of the pancreas and unnecessary depletion of enzyme reserves while at the same time resulting in flatulence.*
5. *They are capable of damaging the intestinal villi, causing them, to atrophy.*
6. *They are acid-forming in the body, often to the extent of causing arthritis and possibly cancer in the long term.*
7. *They are capable of causing allergy reactions such as dry skin, subcutaneous cysts, exacerbation of multiple sclerosis and schizophrenia.*
8. *They are antagonistic to the body's immune system and increase susceptibility to head colds and other infections.*
9. *They are the worst causative factor in tooth decay due to their tendency to readily ferment between the teeth, so producing the acid which destroys tooth enamel.*
10. *They are totally unsuitable for infants, causing in some cases permanent damage to their digestive organs.*
11. *Of all foodstuffs, they contain the highest levels of calcareous salts which gradually accumulate in the tissues and cells, including the arteries, to accelerate the process of aging.*
12. *Apart from antagonizing the digestive system and providing inadequate nutrition, they are absolutely tasteless and unappealing to the senses, being rendered edible only by cooking and artificial flavoring.*

About the Author

Dr. Douglas Graham, a lifetime athlete and twenty-seven year raw fooder, is an advisor to world-class athletes and trainers from around the globe. He has worked professionally with top performers from almost every sport and field of entertainment, including such notables as tennis legend Martina Navratilova, NBA pro basketball player Ronnie Grandison, track Olympic sprinter Doug Dickinson, pro women's soccer player Callie Withers, championship bodybuilder Kenneth G. Williams, *Chicken Soup for the Soul* coauthor Mark Victor Hansen, and actress Demi Moore.

Dr. Graham is the author of several books on raw food and health, including *The High Energy Diet Recipe Guide*, *Nutrition and Athletic Performance*, and the forthcoming *Prevention and Care of Athletic Injuries* and *The 80/10/10 Diet*. He has shared his strategies for success with audiences at more than 4,000 presentations worldwide. Recognized as one of the fathers of the modern raw movement, Dr. Graham is the only lecturer to have attended and given keynote presentations at all of the major raw events in the world, from 1997 through 2005.

Dr. Graham is a founder of and is currently serving his third term as president of Healthful Living International, the world's premier Natural Hygiene organization. He is on the board of advisors of Voice for a Viable Future, the Vegetarian Union of North America, Living Light Films, and EarthSave International. He serves as nutrition advisor for the magazine *Exercise, for Men Only* and authors a column for *Get Fresh!* and *Living Nutrition* magazines.

Dr. Graham is the creator of "Simply Delicious" cuisine and director of Health & Fitness Weeks, which provide Olympic-class training and nutritional guidance to people of all fitness levels in beautiful settings around the world. He is living proof that eating whole, fresh, ripe, raw, organic food is the nutritional way to vibrant health and vitality.